



Figure 29-2. This diagram shows 2 obstructive apneas during a 1-minute interval during REM sleep in a polysomnogram. The bold arrow identifies the absence of airflow, and the double arrows show continued respiratory effort despite the absence of airflow.

2 respiratory cycles (Figure 29-2).² A hypopnea occurs when there is a $\geq 30\%$ decrease in airflow for at least 2 respiratory cycles associated with $\geq 3\%$ oxygen desaturation, an arousal or an awakening.² The apnea-hypopnea index (AHI) is the number of apneas and hypopneas per hour of sleep. In general, an obstructive AHI > 1 is abnormal, although some sleep centers define pediatric OSAS as an AHI ≥ 5 . Associated comorbidities such as daytime sleepiness, behavioral problems, and hypertension may influence management when the AHI is between 1 and 5. A proposed pediatric OSAS severity scale based on AHI is shown in Table 29-2.³ In general, frequent or sustained desaturations below 80% raise the OSAS severity classification.

If PSG in the sleep laboratory setting is not feasible, home nocturnal oximetry studies and ambulatory or unattended PSG are other diagnostic options. Abnormal overnight oximetry studies can accurately screen for pediatric OSAS (Figure 29-3); however, normal oximetry requires confirmation with PSG as children with OSAS often have frequent arousals, rather than desaturations, associated with their obstructive respiratory events. Research studies have shown that ambulatory PSGs may detect OSAS in older children with moderate OSA (AHI > 5), but data are lacking regarding the value of these studies on a broad clinical scale. Based on the current American Academy of Pediatrics guidelines, nocturnal in-laboratory PSG continues to be the gold standard for diagnosing pediatric OSAS.¹

Because of the health consequences associated with pediatric OSAS and the potential need for surgical treatment, it is essential to accurately diagnose pediatric OSAS using clinical judgment and diagnostic tools. Objective data not only diagnose OSAS, but also determine the severity of disease, which influences the urgency of intervention and postoperative management, as those with severe OSAS may require inpatient observation after surgery.